

GENDER ROLES AND THE SINGLE-SEX ENVIRONMENT:  
THE EFFECT OF SINGLE-SEX SCHOOLING ON  
GENDER ROLE ATTITUDES AND  
LIFE PATH

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By

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July 2015

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## **ABSTRACT**

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ATTITUDES AND LIFE PATH**

By Rose M. Scioli

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The purpose of this study was to ascertain whether or not the single-sex environment has an effect on the gender role perceptions and life paths of young women. Students were selected from two urban high schools, one all-girls and one coeducational. The schools themselves are located a short distance from each other to ensure consistency in regards to socioeconomic status.

This study used a mixed methods analysis. Female students in their senior year of high school were surveyed using a gender role perception inventory (Prasad & Baron, 2009). Ten students from the original sample, five from each site, were then selected for in-depth, face-to-face interviews.

Results indicate that there is little difference in gender role perception and life path between the two samples. The only exception is in the area of gender role reversal, which favors the single-sex school. As such, students from the single-sex school are more likely to indicate comfort with the inversion of conventional gender roles. For life path, no significant difference between the two groups was found in terms of traditional, non-traditional, and gender-neutral career plans.

Interviews with students from both sites reveal two major differences thematically. Students in the single-sex school reported that the decision to attend an all-girls school was mostly made by their parents, while students in the coeducational school reported making the decision themselves. The second difference between the two environments is that students in the single-sex school reported that they and their peers in the school feel quite comfortable acting “themselves” because of the lack of males in the environment. The students in the coeducational school corroborated that sentiment by expressing the tendency of their female peers to act differently in the presence of male peers.

The results of this study do not conclusively prove that the single-sex environment is beneficial for the formation of non-traditional gender role perception and life path, with the exception of the reversal finding. The interviews, however, may indicate that the students in the single-sex environment have an advantage in terms of comfort because of the absence of their opposite sex peers. Indisputably, this study confirms that more research is needed in the area of single-sex education for females.

To the Bambies...  
whose proud and eager loyalty  
has always inspired me.  
Keep those spears poised.

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Finally, I want to acknowledge my parents for instilling in me the value of education and leading by example. Gender, family, finances, and life in general should not stand in the way of pursuing one's educational goals. That is the truest lesson.

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## CHAPTER 1

### INTRODUCTION

#### Background

The issue of single-sex education for girls in America has long been the subject of debate and controversy, more so now than ever before in the post-NCLB and *Race to the Top* education landscape. The topic of educating students along gender lines extends all the way back to the beginning of the education system. There have been several events in the last 50 years that have directly affected single-sex education, most notably the landmark Title IX legislation passed by Congress in 1972, which essentially outlawed sex discrimination in schools. In more recent years, brain-based research highlighting differences in boys and girls brains, the threatened closing of some women's colleges, formerly single-sex schools becoming coed, and the rising popularity of single-sex classes for young at-risk youth have all contributed to make this topic more relevant today than ever before. In addition, several books published on how girls are at a disadvantage in coeducational schools have had widespread impact. Researchers and educators alike have recognized the need to investigate the actual and perceived benefits and costs of considering educating students separately along gender lines.

#### Problem

Examining the literature on the topic of single-sex education, it is most striking the lack of consensus among researchers as to whether or not single-sex education is beneficial to students. The evidence is contradictory, with both pro-single sex and anti-single-sex camps interpreting evidence to support their own viewpoints. Researchers in the field are still seeking definitive conclusions on the topic. There are also so many

factors to consider when discussing “benefits” and “positive outcomes” for single-sex education as well. For instance, should the research focus be on academics, achievement, attitude, or maybe even all of these? Perhaps, if single-sex education is beneficial even in one of these regards, then there is value in it. In a March 23, 2015 *Education Week* article, Gardner echoes this sentiment, and poses the question “although research shows insignificant academic benefits from segregating by gender, if parents believe that their children learn better in single-sex classrooms, who is being harmed?” (“Walt’s Reality Check”, 2015).

It is interesting as well that, despite the fact that there has been a rise in research devoted to the topic of single-sex education, there appears to be a lack of programs and schools available that provide single-sex education for either gender. This is attributed to a number of confounding factors, but mostly because it is cost-prohibitive (Mael, 1998). Were there definitive evidence that girls benefit from single-sex education in a significant way, then more money and energy could potentially be assigned to the cause. In addition, were the opposite true, the debate could be put to rest. It is the very absence of consensus on whether females should be educated with males that makes a study of this topic extremely relevant and worthwhile. The need to examine whether there is an effect on female perceptions of gender roles and life plans is present, for the debate continues on, and will continue to do so, until more research is conducted. This study could potentially contribute to the body of research on the subject, and help educators and policy makers make informed decisions on single-sex and coeducational schooling options and opportunities. In addition, the debate around legislation such as the landmark Title IX will be better informed.

In my career as an educator, I have been afforded the rare experience of having taught in a high school classroom in an all-girl school, an all-male school, and a coeducational school. Currently, I am an administrator in an all-female high school in Philadelphia. In my almost fifteen years in education, I have been able to experience first-hand the unique challenges, advantages, and disadvantages in each classroom and school environment that are related to the gender composition of the students. The school district in which I am employed has a number of schools that are single-sex, as well as coeducational institutions; of the 17 high schools, five are single-sex. Single-sex schools are rare in the public sector, which makes the availability of these institutions all the more fortunate as a researcher. I taught in two of these schools, and am interested to examine on a formal basis if the single-sex environment for girls has advantages, particularly in terms of gender role attitudes. In this case, I am looking to see if girls from the single-sex school are more likely to hold non-traditional gender role beliefs, and more likely to report the desire to pursue non-traditional career/college plans, hereto forward referred to as life plans.

### Purpose

The purpose of this study is to examine whether or not there is a correlation between the school environment and student attitudes toward gender roles and their own life plans as a result. Some researchers believe that females in a single-sex school are afforded opportunities that do not exist in the coeducational setting because of the mixed gender environment; opportunities that help them develop in terms of seeking non-traditional gender role and life path choices. Research suggests that young women in single-sex schools are more likely to pursue non-traditional studies and career paths

(Sullivan et al., 2010). In addition, it appears that young women in these environments are more likely to have more egalitarian perceptions of gender roles than their coeducational counterparts (Erarslan & Rankin, 2013). Overall, current research may support the idea that the single-sex environment for females may have a more positive effect on the encouragement of females into atypical post-secondary studies, career pursuits, and a more egalitarian view overall of gender roles. In this way, the single-sex environment could prove beneficial in breaking down traditional social norms that have had a limiting effect on female student life plan choices (Hartman, 2010).

### Research Questions

**Central Question:** What effect, if any, does the schooling environment in terms of gender (single-sex or coeducational) have on perceived gender roles and choice of life plan?

#### *Quantitative Research Questions*

1. Are there significant differences in the gender perceptions of girls who attend a single-sex school as contrasted to girls who attend a coeducational school?
2. Are there significant differences in anticipated life-goals of girls who attend a single-sex school as contrasted to girls who attend a coeducational school?

#### *Qualitative Research Questions*

3. How do students in the single-sex school perceive their high school experience in terms of being segregated by gender?
4. How do students in the coeducational environment perceive their high school experience in terms of the mixed gender composition of the school?

## Research Design

In this research, samples of female high school seniors from two schools, one coeducational and the other all-girls were studied. They are both Catholic schools located in a large mid-Atlantic city, with students of comparable socioeconomic status. For the most part, the students are from the same neighborhoods of the city, and that helps to control for some potentially confounding socioeconomic effects. A survey was administered to students to gauge gender role attitudes, and then open-ended interviews with willing participants from the original survey group were conducted. The interviews function to help understand the experience of young females in these different educational settings and ascertain from them directly how they construct meaning from their own experiences. The data from the two groups were compared, and patterns of meaning in the interview responses examined. The intent was to examine whether or not there is an influence on students' gender role ideas because of the single-sex or coeducational schooling environment. In addition, the research examines if there is a correlation between a non-traditional life plan and the schooling environment.

## Definition of Terms

All-Boys (AB) – schools or classrooms that educate boys only.

All-Girls (AG) – schools or classrooms that educate girls only.

Coeducational (CE) – schools or classrooms that educate boys and girls together.

Life Plan – the self-reported choice of college major, career, or family plan of students in this study.

Single-sex (SS) - schools or classrooms that educate students of one gender exclusively.



## CHAPTER 2

### LITERATURE REVIEW

#### Historical Background

There are a large number of research studies and literature reviews related to the issue of single-sex education over the last twenty years. It seems that this is due in large part to a reconsideration of the idea of educating boys and girls separately. This comes as a change from the trend that started in the 1970's regarding how schools provided for each of the sexes in terms of funding and programs. Congress passed Title IX of the Education Act Amendments of 1972, and this legislation stated, "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subject to discrimination under any education program or activity receiving Federal financial assistance." In essence, "sex bias was outlawed in school athletics, career counseling, medical services, financial aid, admissions practices, and the treatment of students" (Sadker & Sadker, 1994, p.36). Sex (or gender) bias can be defined as "treating girls and boys differently in schools...this includes how teachers respond to other students, what students are encouraged to study, and how textbooks and other resources represent gender roles" (Owens et al, 2003, p.132). As a result, school books and resource materials were analyzed for sex bias, improvements to athletic programs were made, and an overall increased sensitivity to equality between the sexes was present. Though this may have been the official policy, critics of Title IX point out that there were issues with implementation and enforcement of the law. Complaints were filed, yet "between 1972 and 1991 not one single school in the United States lost a single penny of federal funds due to gender bias" (Owens et al., 2003, p.132).

Another issue surfaced in the attempt to provide equity for both sexes in schools. Title IX, it seems, actually restricted the circumstances for single-sex education to be allowed in the United States, and, as a result, this legislation contributed to the decline in the number of endeavors to establish single-sex public schools. Because schools were required to provide equal access to resources to both sexes, it was frequently cost-prohibitive to support single-sex classrooms and schools. Title IX essentially reflected the belief that separate could not possibly be equal in terms of gender. Ironically, Title IX was originally intended to limit the sex discrimination and unequal funding for women's programs within CE schools, yet it did much to contribute to the decline of SS schools (Mael, 1998).

Historically, women were excluded from formalized education. As Owens et al. (2003) suggest, "today's girls continue a three-hundred year-old struggle for full participation in America's educational system" (p. 131). During colonial times, the home was considered the appropriate classroom, and the domestic arts were the curriculum. Women were expected to assume the responsibilities of a family and household, so it was believed that there was little else of import needed for their education. When women were permitted to be educated, too often these opportunities were substandard to the opportunities available to boys. Girls wishing to seek an education were forced to attend school in the hours that boys were not in school, and often at an exorbitant cost. Sadly, the idea of educating girls came as a by-product of teachers of boys looking to generate extra income (Sadker & Sadker 1994).

In the United States, there is a long-standing tradition of educating boys and girls together. This was attributed to the fact that laws in this country make it compulsory for

students to attend school, and in rural areas, simple logistics do not provide for the opportunity for boys and girls to be educated separately (Rigdon, 2008, as cited in Bigler & Signorella, 2011). It simply was not financially feasible in areas where populations were sparse; therefore, western and rural areas commonly educated boys and girls together. Single-sex schools were only common among the affluent Northeastern cities, and in the south. Many times, one high school would be built with separate entrances and floors for the two sexes. By 1900, 98% of American public high schools were coeducational. The growth of the feminist movement, ironically, added additional momentum to the coeducational movement. The push for coeducation came then as a result of the desire for more equitable conditions for girls, conditions that were in place already in most cases for boys.

By the mid-twentieth century, most opportunities for single-sex education were in private, not public, schools. These private schools were also dwindling in numbers, much for the same reasons that most public schools since the 19<sup>th</sup> century are coeducational. Unfortunately, the public trend toward coeducation was not driven by research and educational philosophy regarding the benefits of such, but rather because of economics. It is simply more economical in many cases to educate males and females together (Mael, 1998).

“Coeducation at the high school level was not adopted as a consequence of any careful consideration of the inherent values such a system might have, and certainly not because of any research evidence pointing to its benefits. Nor was it introduced or accepted or defended, to any great extent, on the basis of any such principle as equality of the sexes. Rather, coeducation came into being rather unobtrusively as the more economical, and often only possible means of providing a more advanced education for the majority of American youth.” (Kolesnik, 1969, p.90, as cited in LePore & Warren, 1997)

Private schools are rapidly moving toward coeducation for these same reasons, and even they are less likely to be SS in the post-Title IX era (Schmurak, 1998).

Catholic schools have traditionally provided opportunities for single-sex education at the secondary level. Since most Catholic schools are governed, founded, and/or staffed by a particular religious order, the single-sex gender context was preferred. In this way, as Riordan (1985) argues, “gender context of a school is a clear-cut school policy decision” (p. 520). So, rather than being governed by legislation the gender composition of many Catholic schools remained single-sex by choice, and single-sex was the preferred context. Unfortunately, Catholic schools have fallen victim to decline in enrollment over the past 40 years, and many single-sex schools have been forced to merge and become coeducational. Again, this is a result of economics, not necessarily policy.

The 1990’s saw a resurgence in interest in single-sex schooling as a result of many studies and publications that emerged suggesting that girls are not being treated fairly in schools, as well as scientific research that posits there are inherent differences between boys and girls and the way they learn. Evidence suggests that the single-sex environment is particularly beneficial for young minority males. Improvements in neuroimaging techniques within the field of psychology enabled researchers to assert claims that the brains of men and women were biologically different; therefore, they learn and process information differently (Bigler & Signorella, 2011). Books were published on the topic, like Gurian’s *Boys and Girls Learn Differently!*, and teacher-training seminars were offered across the country to enable teachers to understand the inherent differences between boys’ and girls’ brains and how to educate each appropriately. The main question posed is, if boys and girls learn differently, then why should they not be educated separately and more appropriately for their gender? Gurian’s book was, and

continues to be, extremely popular and is considered to be a manual for teachers interested in educating according to gender. Sax (2005) has also contributed to the area of gender differences and education, by citing some of the same research. He believes that students are done a great disservice by what he calls “gender-blind education” which has been the trend over the past few decades in America. Essentially, schools are failing to recognize the differences in how boys and girls learn. In an attempt to be politically correct and egalitarian in schools, the differences biologically innate to each gender are overlooked to the detriment of students. According to Sax, “gender-blind education leads paradoxically to a strengthening of gender stereotypes”(p. 99) rather than the opposite, which is the intention. It “has not ameliorated gender differences in important educational outcomes; in some cases it has exacerbated them” (p. 114).

The American Association of University Women (AAUW) published two reports (1991 and then again in 1994) that focused on the notion that girls are being shortchanged in schools, and are, therefore, actually harmed in coeducational schools and classrooms. The study synthesized more than 1300 published studies on girls in school and brought widespread attention to the cause for equal education for girls. In addition, the AAUW surveyed some 3000 girls and boys between grades 4 and 10 to gauge their perceptions of themselves. Career choices, gender roles, self-esteem, and identity were all gauged as well.

The findings of the survey are alarming. It seems that both genders experience a loss of self-esteem as they enter adolescence. The problem is that the loss is greater for girls than it is for boys, for “more boys than girls entering adolescence with high self-esteem, and many more young men than young women leaving adolescence with high

self-esteem” (p. 7). The supposition is that the loss of self-esteem has a negative impact on the career and life plan choices that girls and boys make. The decline may have a limiting effect on the dreams and future actions of girls in our nation, which is troubling considering that females make up almost half of the workforce. The survey also finds that an interest and perceived ability in math and science seem to be tied to adolescent self-esteem. The only issue with this connection lies in the fact that boys perceive themselves as much more adept in these areas than girls do. “Girls’ perceptions of their ability in math and science had the strongest relationship to their self-esteem; as girls ‘learn’ that they are not good at these subjects, their sense of self-worth and aspirations for themselves deteriorate” (AAUW, p. 10).

The AAUW believes that the solution to these problems lie in changing classrooms. Teachers are tasked with examining their teaching practices and the latent messages that they send to each of the genders. The diaspora between how girls and boys are educated needs closing, for not only are girls being cheated, but our nation as well. In addition, they encourage parents to contact lawmakers to ensure that Title IX mandates are being followed in their districts to ensure equity between the sexes.

The husband and wife team of Myra and David Sadker (1994) published a landmark book detailing their more than 20 years of research that came to the same conclusion as the AAUW survey. Their book *Failing at Fairness: How our Schools Cheat Girls* received a tremendous amount of attention, in both academia and popular media, and alarmed a number of people from feminists and political leaders. The book was aimed both at a broader audience than most research, and parents were encouraged to participate in the educational dialogue rather than simply researchers and educators. They

claim that girls are being done a disservice in our schools because boys receive more attention from teachers and actually dominate classroom activities. As a result, girls are often overlooked and ignored to their own detriment. In addition, teachers encourage boys and girls in different ways. Where girls are praised for their personal appearance and the appearance of their work, boys are praised “most often for the intellectual quality of their ideas” (p.57). This sends the subtle but distinct message to both genders about what is indeed important, and that translates detrimentally for young girls. Teachers also initiate more interaction with boys than girls, which strengthens the boys’ notions of self-worth and doing the opposite for girls. The widespread attention these publications received spurred attempts by lawmakers to make changes to Title IX because they viewed SS schools as the solution to the crisis that girls face in this nation’s schools.

In 2001, Congress, under the leadership of Hillary Clinton and Kay Hutchison, among others, created a provision within an education bill that provided funding for single-sex schools and classrooms. Even though the new legislation would violate Title IX, the Bush administration made it clear that their intent was to amend the original legislation to allow for such funding. The new amendments to Title IX that allow for the SS classrooms were justified by the emergent research and publications referenced above. Ironically, as Bigler and Signorella (2011) point out, however, “to date, there are hundreds of studies on single-sex education, but insufficient sound empirical evidence concerning the consequences of single-sex versus coeducational schooling” (p. 663). In effect, changes to policy were made, even though researchers cannot come to a consensus on the value of these changes. They go on to state:

“It appears that the creation of single-sex schools has not been motivated by convincing empirical evidence but rather by gender-related political ideologies and as yet unsubstantiated hypotheses about gender differences and gender role development among youth.” (p. 663)

These changes, however misguided some may feel them to be, made it possible for school districts to even consider single-sex schools, and, therefore, has shone a spotlight on the topic currently. There may not be definitive evidence that educating students separately along gender lines is beneficial, but rather than deter the cause of SS, more research is certainly called for.

### Current Research

A number of studies of late have focused their attention on the subject of SS education, with differing results. Chadwell (2009) provides statistical evidence to support the positive effects of SS education, for both boys and girls. He conducted a survey over two years of students, parents, and teachers involved with a single-sex program in South Carolina and found that 50% of students, 60% of parents, and 70% of teachers report a rise in self-confidence, motivation, participation, achievement, and sense of community as evidenced by the students in same-sex classes. In addition, 70% of schools report that discipline referrals for single-sex classes are fewer than in mixed-gender classes.

Chadwell also reports that the students in the single-sex classes outperform their co-ed counterparts in math, reading, and language arts performance. While this study is not as concerned about achievement so much as attitudes and perceptions, the data in this study still deserve comment. Based on his research, Chadwell concludes that the success these South Carolina schools have been experiencing is “because the dynamic between boys and girls can cause students to act out, not raise questions, or not take advantage of learning opportunities” (p.16). Chadwell’s research is promising because it suggests that



attitude, achievement, and behavior are all positively impacted by the segregation of students along gender lines.

Sullivan, Joshi, and Leonard (2010) examined single-sex schooling to ascertain whether academic attainment throughout the lifetime was impacted. This longitudinal study follows a cohort of 960 students throughout their lifetimes, both male and female, born in 1958 in Britain. The study examines both the single-sex and coeducational environments for each gender. They attempt to show the impact of single-sex schooling on a range of academic outcomes, including performance on graduation exams, likelihood of attaining a university degree, basic literacy, and participation in educational classes later in life. While the study did not find significant impact of single-sex schooling on later educational attainment for either gender, they did find that single-sex schools were associated with attainment in gender atypical subject areas for both boys and girls. They also determined that “women who had attended single-sex schools were more likely than co-educated women to gain their highest qualification by age 33 in a male-dominated field” (p. 25).

The conclusion of this study is that “single-sex schooling is linked to the attainment of qualifications in gender-atypical subject areas for both sexes, not just during the school years, but also later in life” (p.6). It seems that students who were educated in the single-sex environment were more likely to continue on in their academic careers than their coeducational counterparts. Women have been underrepresented for years in mathematics and sciences (“masculine pursuits”), and men are less likely to participate in “feminine” pursuits such as English and modern languages. Sullivan et al. reject the notion that this is due to personal preference and natural ability, and there are

broader gender issues at play. They urge researchers and educators to remember:

“...both girls and boys may be trammled by sex stereotypes during their school years, which set them on divergent pathways in their later lives and careers. The fact that coeducation has exacerbated the gendered nature of students’ attainments, not just at school, but in terms of their post-school qualifications, suggests that gendered norms regarding education are not immutable and can be influenced by the context of schooling.” (p. 29)

This study lends itself to the research questions at hand in that the pursuit of education in gender-atypical subject areas was directly affected by whether or not the student was educated in a single-sex environment.

Erarslan and Rankin (2013), in their study of female students in both single-sex and coeducational schools in Istanbul, forward the positive attributes of single-sex schooling, in this case for girls specifically. Though the political and social climate is very different in Turkey than in the United States, the findings of their research are no less fascinating and relevant to the discussion here. They studied young women in four high schools, two all-female and two coeducational. They found that the girls in the single-sex environments held more egalitarian views on gender roles than their coeducational counterparts. This is especially important considering the strict Muslim backgrounds of the females involved. The single-sex environment may positively affect the expected family life of the students in that they are more open and expecting of a lifestyle that is different than the traditional cultural norms of Turkey. Furthermore, they point out “coed schools often foster traditional gender roles by reinforcing submissive roles for girls” (p.457). In this traditionally conservative environment, it seems that single-sex schools are providing for girls more choices when it comes to developing their own perceptions about gender roles and their identity as females. They caution, however,

that their results “give some support to the claim that single-sex schools can socialize students into more egalitarian family life gender roles” they cannot conclude “that single-sex schooling is beneficial for all students” (p.464). Again, the call for more research is made, and the impact of the schooling environment on perceived gender roles is a topic that warrants further investigation.

Lee and Bryk (1986) echo similar sentiments about the effect of single-sex schools on female attitudes and achievement. Their study was conducted with 1807 students in 75 Catholic high schools, 45 of which are single-sex. The data for this study were drawn from a national survey of secondary students called *High School and Beyond (HS&B)*, which was a national survey sponsored by the National Center for Education Statistics in 1980. The original sample consisted of 1015 schools and 36 sophomores and seniors from each school were used. This study is applicable directly to this research, because the schools investigated are also Catholic in affiliation. Lee and Bryk chose to only focus on the Catholic schools because they were oversampled by *HS&B*. In addition, SS schools are not common in the public sector; so Catholic schools are a logical choice for study.

Lee and Bryk posit that the single gender environment “may actually facilitate adolescent academics development by providing an environment where social and academic concerns are separated” (p. 381). They found that girls were “considerably less likely to evidence stereotyped sex role attitudes than were comparable girls in coeducational schools” (p. 389). A number of other relevant items were found as well in the area of attitudes and behavior. “Girls’ schools evidenced consistent and positive effects on student attitudes toward academics” and “these students were more likely to

associate with academically oriented peers and to express specific interests in both mathematics and English” (p.287). Likewise, “students were generally more interested in academics and showed significantly greater gains in reading, science, and educational ambition over the course of their high school years” (p. 394). Students in single-sex schools also reported higher satisfaction with both their schools and the quality of teaching occurring within them than did their coeducational counterparts. They state, “at a minimum, the student reports on teaching quality and rating of their schools, in conjunction with the other results presented in this article, indicate that something significant is occurring in Catholic single-sex schools” (p.393). It is unclear what exactly is occurring, but the notion itself, along with the other positive outcomes, suggests that further exploration of single-sex schooling is required.

Not all researchers are as enthusiastic about Lee and Bryk’s findings, however. LePore and Warren (1997) tried to replicate their findings, but with a more recent data set. Instead of the *High School and Beyond* data, LePore and Warren used the National Educational Longitudinal Study of 1988 (NELS:88) to determine whether or not there was validity to the claims that single-sex schooling is advantageous to students in terms of academic achievement and self-concept. NELS: 88, as the name would indicate, is a longitudinal survey of the 8<sup>th</sup> grade student cohort of 1988. Approximately 25,000 U.S. students representing 1,000 public and private schools were randomly selected and surveyed, and information from parents, school officials, and teachers were collected as well. The data were sampled purposefully to include students who were similar to the catholic school students Lee and Bryk studied. Essentially, the authors were trying to

determine if there were differences between CE and SS Catholic schools, and whether or not these environments favor the positive development of females.

Overall, the results were not promising for those in support of the positive effects of single-sex schooling. As the authors put it,

“We cannot conclude that single-sex Catholic schools are especially advantageous academic settings, at least relative to coeducational Catholic schools...we find no evidence that single-sex Catholic school boys or girls *learn* more than their coeducational Catholic school peers during the high school years.”(p. 209)

LePore and Warren offer several potential reasons why their results should be so markedly different from Lee and Bryk. The data used by the latter dates to 1980, and potentially there could be a drastic difference between the Catholic schools during the time that the *High School and Beyond* data were being collected and the time of the NELS: 88 survey. This could be due to the fact that “throughout the 1980s and early 1990s, a significant number of Catholic single-sex Catholic schools merged with other single-sex institutions and? converted to coeducational instruction” (p.505). Other potential causes relate to the possibility of pre-existing differences among the students sampled, and an overall heightened awareness of gender bias and discrimination in schools as a whole. No matter the causes, the fact that two separate studies of comparable data could find such extreme differences in outcomes make the problem of quantifying the value (or non-value) of single-sex education all the more difficult. It truly speaks to the need for more information and clarity.

Lee, Marks, and Bryk (1994) take the idea of engenderment (socialization to gender) and examine it further in three types of secondary schools – boys’ schools, girls’

schools, and coeducational schools. They studied 86 different classrooms, and were looking for indicators that sexism was present. For their purposes, sexism is defined as the assumption that, due to biological differences in males and females, there are appropriate differences in social roles, status, and modes of behavior. Sexist incidents in classrooms come in the form of gender reinforcement, embedded discrimination, sex-role stereotyping, gender discrimination, active discrimination, and explicitly sexual incidents. Classrooms, according to these researchers, “are primary sites for sexist socialization” (p.92). As such, Lee et al. were searching for indications of sexism, as the presence or absence of it has an impact on the ways in which students are socialized, and the degree to which they accept or reject sexist norms. They found that, though sexism was present in all three types of schools, the severest forms of sexism were present in the boys’ schools. Furthermore, “girls’ schools exhibited the most gender-equity events” (p. 92). Their study is not, however, a call for more SS schooling, but, rather, they see it as a way to raise awareness to the issue of sexism in schools. “Since the frequency of sexism was roughly equivalent across the three types of schools, neither coeducation nor single-sex schooling may be exonerated” (p.113). They encourage schools to become instruments of change in our society.

Shapka and Keating (2014) examined the benefits of girls-only classrooms in terms of attitude and achievement in math and science during grades 9 and 10. This focus on math and science is significant because these are two areas deemed “non-traditional” for females in that women are typically underrepresented in these areas of study. The implications of their underrepresentation are problematic, for as Shapka and Keating point out “the disproportionately lower female participation rates leave a large portion of

the female population at a disadvantage in a technologically challenging and advancing society and economy” (p.930). They examined the female students’ attitudes toward math and science, and what they called “math anxiety” and were looking to ascertain whether or not negative feelings were lessened in the female environment. Unfortunately, they were not able to find an effect on the reduction of math anxiety or attitudes toward math for girls, but they did note that the all-female classrooms had a more positive effect on girls’ math and science performance and persistence than in the coeducational setting. Persistence in math and science is of particular interest here. This is further evidence that there may be a positive correlation between the single-sex environment and math and science persistence in girls.

Bigler and Signorella (2011) chronicle the history of single-sex education in the United States and the factors that have led to its rise of late. They found that throughout the research done in the field of single-sex education, there is much dispute when it comes to research methods and interpreting findings. In some cases, depending on how the data are interpreted, researchers can conclude opposite findings from the same data set. Once again, research is proven lacking for a definitive answer on the topic. Bigler and Signorella (2011) also examined a number of studies and dissected each individually based on their own strengths and weaknesses. Their conclusion was that there really is no clear consensus on whether or not single-sex education is better or worse (and “better” and “worse” mean different things to different researchers) for students than a coeducational environment, which clearly identifies the need for more research in this area. They cite the difficulty researchers have in quantifying what “better” really is, and what exactly it is about gender-segregated classrooms that may be beneficial, or even

harmful. Despite the controversy, they posit an interesting point about all-female schools in particular “that girls and women might benefit from single-sex education because inconclusive research should not be the basis for rejecting an educational approach, particularly when enough studies show findings to offset those that do not find effects” (p.662). Overall, the recommendation is clearly made that further research and analysis be conducted to find a definitive answer on the subject of whether or not single-sex education is better or worse for students.

### Single-Sex Environment and Life Path

Several years after Lee and Bryk, Thompson (2003) revisited the *High School and Beyond* data to ascertain definitive conclusions regarding single-sex education for girls. Instead of focusing on achievement, Thompson decided to look at career paths for women educated in the single-sex environment. Her findings indicate that females educated in all-girls high schools are more likely to choose college majors in sex-integrated fields than their coeducational counterparts. The data show a 19% difference between females from an all-girls school and females from a coeducational one. In addition, feminist attitudes are higher in all-girls than coed schools. She posits that the reasons may be attributed to the socialization that occurs in all-girls schools. According to Thompson, schools reproduce gender inequality through various forms of male bias. Thompson believes that differences in attitudes of students in all-girls schools occur for the following reasons:

“In an all-female environment, girls do not compete with boys for teachers’ time and attention. Girls are the school leaders and top students in all classes, including math and science. Strong female student and adult role models may be more available in the single-sex institution. The peer culture may be less focused on



heterosexual relationships and more focused on academic achievement. Pro-feminist measures and discussions of the costs of sexism may also be more widespread in a setting devoted to the education of girls.” (p. 260)

These factors all point to the culture of the school and the socialization mechanisms in effect within. The absence of boys lends itself to an environment that is female-centered and, therefore, the male bias is diminished, if not eliminated, according to Thompson. These factors may also affect a girl’s choice of college major, as she is socialized to reject gendered notions of academic subjects. “Women from all-girls schools do major in fields with fewer women compared to women from coed high schools” (p.267).

Tidball and Kistiakowsky (1976) were likewise interested in determining the academic origins of women, particularly women who have gone on to doctorates. They examined the data on “institutional productivity in terms of baccalaureate recipients who have subsequently earned research doctorates” (p.646). The percentage of women as compared to men was of interest. They examined the data of 137 colleges and universities and recorded the number of baccalaureate recipients of each sex for each decade starting with the year 1920. They then compiled the number of doctorate degrees earned from those same graduates in the years following up until 1969. Tidball and Kistiakowsky were able to narrow down nine institutions that are most prolific in the production of female students who go on to obtain doctoral degrees. Of those nine schools, seven are private women’s colleges and two are private universities. The study demonstrated that “women who obtained doctorates in the biological and physical sciences were more likely to have graduated from women’s colleges than from coeducational undergraduate institutions” (p. 648).

Tidball (1986) furthered her previous work and included an even larger and more recent sample than before. She examined several colleges and universities, both public, private, SS, and CE, and analyzed the number of graduates who went on to obtain doctorates in the natural sciences. Women are certainly underrepresented in this area, for “men receive four to five times more doctorates in the natural sciences than women do” (p. 618). She found that “women’s colleges are not only the most productive college type, but also the most productive of all institutional categories” (p. 614). These findings certainly bolster the argument in favor of the single-sex environment for pursuing non-traditional educational paths.

Schmurak (1994) attempted to determine if graduates of all-girls schools were more likely to produce women who pursued non-traditional careers, particularly those in the sciences. Inspired by the findings of Tidball, she sought to reproduce the same results with a study of all-girls high school graduates instead of all-girls college grads. The purpose of her study was twofold: first, she was looking to compare the careers of female graduates from independent all-girls schools to those of their CE counterparts; second, to compare the all-girls graduates to their public all-girls school counterparts. The study was prompted by the hypothesis that all-girls schools, both public and independent, “are empowering and encourage young women to enter nontraditional fields” (p. 2). The careers of female graduates of 15 schools from the classes of 1960 to 1985 were examined, and the number of women in each of ten fields, deemed traditionally male fields, were recorded for each class.

Overall, Schmurack was unable to determine that graduates from all-girls high schools were more likely to enter non-traditional fields than their CE counterparts. “The

girls' schools did not produce more women in any of the traditional fields considered, and in fact were outperformed in several fields by the coeducational schools" (p. 11). Though this finding is seemingly disheartening in the case for all-girls schools, Schmurack does concede that there may be other factors which confound the effects of an AG environment. For one, many of the independent schools were traditionally lacking in math and science curricula, which would have prepared and encouraged young women to enter fields that rely heavily on those areas. It was simply not a path down which these students were led. In addition, she contends that it is also possible that AG graduates became overwhelmed in the CE environment of most colleges, and were less prepared to compete with the males as those CE graduates who were more accustomed to the competitive atmosphere of the college classes.

Schmurack did not replicate the findings of Tidball (1973, 1976). It is possible that this is a result of the methodology, as well as the sample that was studied. Schmurack was looking at high schools rather than colleges. In addition, Tidball was concerned with identifying graduates who had distinguished themselves in their respective field, and then determining the school from which they graduated, rather than vice versa, as Schmurack did. Either way, the difference in findings in the two studies once again points to a need for greater research in the area of SS education.

Hoffnung (2011) studied women graduates of both SS and CE colleges like Schmurack, but was interested in the career and family outcomes for students, and what, if any, effect the gender composition of the school may have had. Her longitudinal study followed 120 women who graduated college in 1993 over the course of 16 years. The women were graduates of three selective colleges, two SS and one CE. Hoffnung found

no correlation between the SS colleges and the CE in terms of outcomes for women with advanced degrees or participation in STEM careers, which are typically those careers with less female participation. She could not prove that women who attended SS colleges fared differently than women in CE colleges when it came to defying gender norms for career and family. She attributes this phenomenon to the notion that America's universities have, perhaps, become more hospitable to women. In the past, the AG college would have provided support for young women, CE schools, according to Hoffnung, now seem to do a better job of accommodating women and encouraging them in non-traditional life paths.

As evidenced in this section, most of the literature regarding single-sex education compares the single-sex environment with the coeducational one for evidence of the benefits of such. What is lacking, and perhaps with good reason, is the examination of each school environment in terms of culture. Schools differ dramatically from each other based on different factors, including the students, teachers, administration, and even location, to name a few. The assumption is that separation by gender is the only difference between the two types of schools. A deeper investigation of the culture, which potentially is attributable to the gender composition of the school, is warranted. We know that there is something occurring in all-girls schools that may prove beneficial to students, it is important now to examine why that is occurring, and whether that can be attributed to school culture differences. Though this literature review is not exhaustive, it does point to the need for a more in-depth look at single-sex education versus

coeducation for females, as there are certainly some interesting phenomena that deserve closer examination. In addition, a lack of consensus on the part of researchers proves that there is room for further exploration of this topic.

## CHAPTER 3

### METHODOLOGY

#### Context

The sample for this study consisted of female students from two Philadelphia schools: an all-girl<sup>i</sup> high school as well as a coeducational high school. The two schools selected are both Catholic in affiliation, and are located in adjoining neighborhoods. Both schools have “open enrollment” policies in place, which means that students from the wider metropolitan area are able to attend, which is unlike the public school system. In the public school system, students are directed, for the most part, to schools that are assigned by their geographical location; choice is limited. The students in the sample are in their respective schools because either they or their parents/guardians made the conscious decision to send them there.

#### Restatement of Research Questions

**Central Question:** What effect, if any, does the schooling environment in terms of gender (single-sex or coeducational) have on perceived gender roles and choice of life plan?

#### *Quantitative Research Questions*

1. Are there significant differences in the gender perceptions of girls who attend a single-sex school as contrasted to girls who attend a coeducational school?

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<sup>i</sup> Single-sex and all- girl will be used interchangeably to avoid repetition.

2. Are there significant differences in anticipated life-goals of girls who attend a single- sex school as contrasted to girls who attend a coeducational school?

### *Qualitative Research Questions*

1. How do students in the single-sex school perceive their high school experience in terms of being segregated by gender?
2. How do students in the coeducational environment perceive their high school experience in terms of the mixed gender composition of the school?

### Research Design

This research was a mixed methods study, which employs both quantitative and qualitative research methods. The quantitative portion of the study includes the administration of an online survey. Participants were asked to volunteer for a follow-up interview, which comprises the qualitative aspect of this research. Mixed methodology combines both quantitative and qualitative research approaches in an attempt to create a more robust study than would be possible through each approach alone. Cresswell (2011) states that mixed methods research “involves philosophical assumptions, the use of qualitative and quantitative approaches, and the mixing of both approaches in a study” (p.4). Brewer and Hunter (1989) echo the sentiment by stating, “social science methods should not be treated as mutually exclusive alternatives among which we must choose” (p.16). As such, a mixed methods study will provide insight that neither a qualitative nor quantitative study could do on its own. This approach provides a clearer picture of what phenomena are occurring for female students who are educated both exclusively with their same-sex peers or in a coeducational setting. A quantitative survey was distributed

to a purposive sample of students, namely female high school seniors. Qualitative interviews were conducted with student volunteers from the original sample. The combination of the two types of data collection processes serve to deepen the understanding of the topic more than a single method approach.

### Participants

Female students from two urban schools were used as subjects. One school was an all-girl high school, and one school was coeducational. The quantitative survey was administered to a sample of 94 students from the all-girls school and 31 students from the coeducational school, executed through the use of an online Googleforms survey. The survey focuses on perceived gender roles as well as students' plans for their life and career paths after graduation from high school. It is for this reason that the focus was on seniors alone for they will be most likely to communicate their future plans in a tangible way, as they will be leaving high school. In addition, the girls in the all-female school have only been segregated as such since 9<sup>th</sup> grade; therefore, the seniors have had the longest exposure to the single-sex environment.

Access to the Catholic high schools was secured through my connections as an assistant principal at another all-female high school in the same school district. The Superintendent for Secondary Education granted permission to conduct research in the schools, and contacts at both schools granted access to their students. In addition, the intentions, purpose, and research design were explained to the principals at each of the two schools. The intent was to be as non-disruptive as possible to the students, faculty, administration, and the school in general. It was challenging at times to collect the data in an efficient way, and the intention was to conduct the initial survey with students during



their homeroom period, which lasts about 20 minutes every morning. Homeroom attendance is compulsory, so there was somewhat of a guarantee that the survey would reach the largest number possible within that time period.

In the all-girls school, a senior teacher volunteered to allow me to conduct the survey during his class. Students were escorted to a computer lab, and given time to complete the survey before returning back to class. Because of the support of the school and the aforementioned teacher, 94 surveys were collected. There was significantly more difficulty involved in collecting surveys from the students at the coeducational school. Several dates were scheduled for me to enter the building and access students during homeroom. Twice the dates were rescheduled due to inclement weather. It was increasingly difficult to arrange for a time that was not disruptive to the students, school administration, teachers, or me. In the end, it was decided that the survey would be disseminated via email correspondence from the office of the CE school's assistant principal. Consent had to be obtained from the parents of subjects, and then the survey had to be completed at a time that was decided by the subjects alone. As a result, only 31 surveys were completed.

The survey data were compiled, and follow-up interviews conducted with the students who indicated their willingness to participate on the original survey form. These interviews were conducted during the school day at a time that was mutually convenient for the students, school administration, and me. Again, the concern here was to neither become intrusive nor disruptive to the school environment, so the intention was that interviews would be conducted during the students' lunch and/or study hall periods. Five subjects were interviewed from each of the sites.

The all-girls school studied is located in a large urban city on the east coast of the United States. The socioeconomic composition of the school is relatively homogeneous, and comparable to the CE school, as the students are drawn from many of the same neighborhoods and parish schools. The school is Catholic in affiliation, a majority of the students, 84.9%, self-identify as being white. The CE school studied is located approximately six miles away from the all-girls school. Students from the same feeder schools populate the school as the all-girls school. This school is, likewise, Catholic in affiliation, and its student population is also mostly white at 75.9%. In the Catholic school system of this city, students are given the choice of where they choose to attend. As a result, schools actively recruit students from the same neighborhoods.

## Instruments

### *Survey*

The survey items are from an instrument created by Prasad and Baron (1996) that was designed to measure the attitudes of subjects toward gender and gender roles. The survey items specifically focus on measuring attitudes rather than gender-typed personality traits, which is why the survey is particularly useful for this research. Their items were developed after considerable consultation of the literature on gender differences, and the underlying assumption is that the items on the survey are neither correct nor incorrect, simply a metric of attitudes toward gender. The results of the two groups surveyed were compared to ascertain whether there is a difference between gender role attitudes for the students in the two environments. This research attempts to

determine whether or not there is a correlation between the schooling environment and either positive or negative attitudes toward egalitarian gender roles.

The survey itself contains a number of statements in regard to gender roles. The statements themselves are opinions about gender roles that subjects are asked to respond to using a 5-point Likert scale. The statements are divided into two types – those that express a traditional view of gender roles, and those that express a more egalitarian view. By comparing the students' responses on each type of question, it will be possible to ascertain how strongly each student feels about either traditional or egalitarian gender roles. The questions themselves are from a survey that was developed to determine the same attitudes that this research seeks to obtain.

This research employed two main instruments for data collection: a computerized Likert-anchored survey, and face-to-face interviews. The initial survey is one developed by Prasad and Baron (1996). Their survey was developed as a new approach to gauge gender role attitudes. Their survey consists of a number of items that were created to ascertain core beliefs of individuals in regard to “gender equality and separation of males and females, beliefs about differences in the suitability of males and females for various roles, and general moral principles concerning equality and inequality”(p.1). It contains a number of statements that are relative to gender in terms of beliefs about gender, moral principles, and policies. Beliefs about gender are gauged by syllogisms such as “boys are naturally better at math and science than girls.” Moral principles include “boys should be encouraged to do what boys are naturally good at, and girls should be encouraged to do what they are naturally good at.” Finally, items related to policy include “schoolteachers should devote more effort to encouraging boys in science and math than they devote to

girls.” The items in the survey are further broken down into scales, which can be used on their own. The items are marked as one of the following based on the scale to which it belongs: *E* (gender equality), *R* (reversal of gender norms), *B* (gender belief), and *M* (moral belief). Each item is then marked as either positive (+) or negative (-) in terms of attitudes toward gender equality, with the exception of *B* and *R*. A low score on the *R* scale indicates a proclivity toward the reversal of current normative gender roles; conversely, a low score on the *B* scale indicates a proclivity toward traditional non-egalitarian gender roles.

Participants were asked to react to each statement using a Likert scale, and the results of their reactions were then interpreted in terms of the individual’s attitudes toward gender. In this way, their questionnaire allows the researcher to examine the “internal consistency of policy attitudes, moral values, and beliefs” (p. 1). The questionnaire was designed for use with a number of different student subjects from a wide variety of cultures, as the results from their validity data suggest consistency (see Table 3.1). The survey was administered to a sample of college students, and the researchers were able to distinguish between groups who took the survey based on the results, such as the distinction between “males from females, foreign and domestic subjects, more acculturated and less acculturated foreign subjects, and Islamic and Hindu foreign subjects”(p. 1). This indicates that the measures are valid. The survey was proven to be both internally consistent and valid, which is why it is being used for the purposes of this research.

Table 3.1.  
*Correlations among gender role survey scales.*

	<b>Equal (E)</b>	<b>Reverse (R)</b>	<b>Belief (B)</b>	<b>Moral (M)</b>
<b>Reversal (R)</b>	0.145			
<b>Equal (E)</b>		0.148		
<b>Belief (B)</b>	0.733	0.142		
<b>Moral (M)</b>	0.550	0.331	0.575	
<b>Gender (male vs. female)</b>	0.424	0.237	0.425	0.346
<b>Sample</b>	0.270	-0.018	0.146	0.111
<b>Acculturated foreigners</b>	0.344	0.143	0.459	0.322
<b>Islam vs. Hindu</b>	0.697	-0.095	0.460	0.269

*p* < .05

#### *Interviews*

From that preliminary survey, several subjects were identified and selected for a follow-up interview; five students from each site. Students were asked to volunteer for further research, so the groups were not selected by me based on responses to the survey. In many cases, availability to the research dictated which students were selected. The intention was always to be as non-intrusive to the school and the students' schedules as possible, so opportunity determined which students were able to participate. For instance, if a student had a test scheduled at the appointment date, then another student was selected from the pool. The interviews were intended to provide more robust insight into the results of the survey and ascertain from the students themselves what effect, if any, the absence or presence of the opposite sex in school has on their ideas about gender roles, as well as future career/life plans. I am also interested in understanding what the

young women in this study have to say about their experience and then compare that to the literature and other theoretical frameworks. In addition, the relationship between the students' experience and their attitudes toward gender roles is worth examining to see if there is a correlation between the environment and non-traditional gender roles and career plans as some of the literature would suggest. The interviews make the analysis of the results of the survey more robust, for they provide a methodological triangulation to study this research problem (Denzin, 1978, as cited in Tashakkori & Teddlie, 1998).

Subjects were asked during the preliminary survey whether or not they would like to participate in a follow-up interview. The interviews were conducted using several questions as a guide (*see Table 3.1*). The questions themselves are based on the items in the survey. The intention was to provide a more robust picture of any phenomena that is occurring in either schooling environment, and potentially explain, from a more personal narrative perspective, the answers that were recorded on the survey. In addition, the self-reported life plans (college, career, family plans) were categorized into either being "male", "female", or "mixed" in terms of traditional norms. This information serves to round out the survey results.

Table 3.2  
*Interview questions for subjects*

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Open-Ended Interview Questions
<b>For SS students:</b> Did you consider the fact that your school is all-girls when you made the decision to enroll? Did that have a big impact on your choice of school? How do you feel about being in a school that does not have boys in it? How do you think your school would be different if there were boys in it? What do you plan on doing after graduation? Why?
<b>For CE students:</b> Did you consider the fact that your school is coed when you made the decision to enroll? Did that have a big impact on your choice of school? How do you feel about being in school together with boys? How do you think your school would be different if there were no boys in it? What do you plan on doing after graduation? Why?

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### Data and Information Analysis

Creswell (2011) states that “social constructivists hold assumptions that individuals seek understanding of the world in which they live and work” (p.8) and it is this notion that frames this study. He further elaborates, “[subjective meanings] are negotiated socially and historically...they are not simply imprinted on individuals but are formed through interaction with others and through historical and cultural norms that operate in individuals’ lives” (p. 21). A constructivist approach was taken to interpreting the findings of surveys and interviews. Though a constructivist approach is more typical of a purely qualitative study, the quantitative aspect of this research study is really the first step of the data collection. The more salient aspect related to constructivism is the in-depth interviews with students and the attempt to capture how they create their own worldview on gender roles in relation to their educational environment. The schooling

environment has a tremendous impact on promoting cultural norms (Sullivan et al., 2010); therefore the constructivist approach is the most appropriate here.

There may be issues that confound this study that may need further consideration. This study was conducted in schools that are Catholic by affiliation and identity. An attempt was made to examine if that factor has an impact on the formation of identity and what role, if any, that plays in the construction of perceived gender roles by the girls. The schools lend themselves easily to comparison, for they are both of the same school district, and their curricula are nearly identical. In addition, as stated before, the students at each school are drawn from the same geographical area, which implies similar socioeconomic status. In past discussions of Catholic schools, researchers like Riordan (1985) drew sharp criticism because he compared SS Catholic schools to public schools. The disparity between the two groups was cause for alarm for some researchers, as selection effects were seen as inevitable, namely because of inherent differences in the student populations of the two types of schools. For one, Catholic schools have admissions and selection standards that are not in place in most public schools, and the SES of the subjects was not always comparable (Signorella et al., 2013). This study sought to ameliorate potential selection bias by comparing two similar subject groups. Tables 3.2 and 3.3 include statistical data relative to each research site. The ethnicity/race and SAT scores are reported below.



Table 3.3.  
*Comparison of student ethnicity and race for each site*

<b>STUDENT ETHNICITY AND RACE</b>	<b>AG SCHOOL</b>	<b>CE SCHOOL</b>
<i>number of students (n)</i>	654	1377
<b>Asian</b>	3%	3.1%
<b>Black</b>	4.6%	2.4%
<b>Hispanic</b>	5.9%	6%
<b>White</b>	84.9%	75.9%
<b>Other</b>	1.5%	12.6%

Table 3.4.  
*Comparison of student SAT scores for each site*

<b>STUDENT SAT SCORES 2013-2014</b>	<b>AG SCHOOL</b>	<b>CE SCHOOL</b>
<b>Critical Reading</b>	448	478
<b>Math</b>	426	468
<b>Writing</b>	468	463
<b>Total Score</b>	1342	1409

#### Role of Researcher

In addition to confounding research issues, I tried to remember the notion of reflexivity in the research. Though the expectation is that there will be a relationship between the school environment and gender role perception, every attempt was made to remain objective when analyzing the data. The interview questions were formulated so that both sets of subjects received the same questions essentially, though altered to reflect

the appropriate gender context of the school. In addition, interviews were conducted using open-ended questions so that the students were able to provide an authentic reporting of experience, rather than an experience that may align with any theoretical leanings regarding the effects of single-sex education on girls (*see Appendix B*). When analyzing the data, my primary focus was on finding common themes between the two groups of students, rather than evidence that would support any potential bias toward single-sex education. Ethically, all attempts were made to impact the environment as little as possible so as not to disrupt the education of the students.

In addition, it is important to note that I bring a certain unique perspective to the analysis of this subject. As a teacher for over a decade, I have experience teaching in the all-girls, all-boys, and coeducational environment. Few have the firsthand experience with all three environments as a classroom teacher and administrator. I have witnessed the challenges and nuances present in each environment, and hope my experiences will add robustness to the topic of single-sex education.

## CHAPTER 4

### RESULTS

#### *Overview*

Chapter 4 will be presented in three sections. Section 1 will present the quantitative data relevant to the research questions. Section 2 will present the interview data. Finally, Section 3 will summarize the results. All of the results are intended to focus on the central question of the dissertation: What effect, if any, does the schooling environment in terms of gender (single-sex versus coeducational) have on perceived gender roles and choice of life plan?

#### *Quantitative Results Relevant to the Research Questions*

The two quantitative research questions are:

3. Are there significant differences in the gender perceptions of girls who attend a single-sex school as contrasted to girls who attend a coeducational school?
4. Are there significant differences in anticipated life-goals of girls who attend a single-sex school as contrasted to girls who attend a coeducational school?

The means, standard deviations and the results of the t-tests for gender perception are presented in Table 4.1.

Table 4.1.  
*Comparison of both sites for types of survey questions*

Items	Mean (Standard Deviation) for AG School	Mean (Standard Deviation) for CE School	t-test	Significance
<b>Equity</b>	4.28 (.389)	4.30 (.399)	.231	.818 (NS)
<b>Beliefs</b>	3.94 (.592)	3.94 (.676)	.018	.986 (NS)
<b>Moral</b>	2.69 (.432)	2.64 (.414)	.670	.504 (NS)
<b>Reversal</b>	3.58 (.297)	3.44 (.300)	2.25	.026 (p < .05)

As shown in Table 4.1, there are no significant differences between the two schools in three out of four of the categories. Students from both schools do not vary in terms of their ideas about gender roles when it comes to equity, belief, and moral statements. The only category of statements that revealed a significant difference between the two schools is reversal (R). As a reminder, Role Reversal refers to the perception of normative gender roles. A typical question from this scale is as follows: “Boys should be encouraged to do things that girls usually do, and girls should be encouraged to do things that boys usually do”. Since girls in the all-girls school had a significantly higher mean, the results indicate that these girls more typically support the reversal of typical gender roles.

As additional analyses, the four components of the gender perception were analyzed against each other through a repeated measures ANOVA. School was added to

this analysis as a between subjects factor. The analysis found that the four scales were significantly different from each other with a large effect size ( $F_{3,369} = 316.54$ ,  $p = .000$ , partial eta squared = .720). The means for the four scales are presented in Table 4.2 with comparisons among the means noted.

Table 4.2:  
*Comparison among the Scale Means*

		Morals	Reversal	Beliefs	Equity
<b>Morals:</b>	2.68	-			
<b>Reversal:</b>	3.55	.000	-		
<b>Beliefs:</b>	3.94	.000	NS	-	
<b>Equity:</b>	4.29	.000	.000	.000	-

As shown in Table 4.2, the students in both schools have the strongest perception of equity with is significantly higher than all other beliefs and the weakest perception of morals.

As a final analysis relevant to this research questions, the data for all of the individual questions from the questionnaire were analyzed to compare the data from the two schools. There were nine questions where a significant difference was found. These results are presented in Table 4.3.

Table 4.3:  
*Individual Questions from the Questionnaire*

Question from the Questionnaire	Mean for Coed School	Mean for Single-sex School
4. Boys and girls should be encouraged to do the same things.	4.11	4.58
5. Boys should be encouraged to do things that girls usually do and girls should be encouraged to do things boys usually do.	3.12	2.45
6. There should be special quotas for women in government jobs.	3.55	3.00
7. Schoolteachers should devote more effort to encouraging girls in science and math than they devote to boys.	4.13	3.68
13. Laws regarding sexual harassment and rape should be made much more favorable to women.	3.38	2.58
16. Girls should be given priority in using gyms and other sports facilities in schools.	3.54	1.94
19. Girls should be given priority in using computers in schools.	3.66	4.19
59. More men should be foreign-language teachers.	3.37	2.94
72. The wife should have primary responsibility for house work other than child care.	4.04	4.45

It is evident from Table 4.3 that some of the significant differences are perhaps more due to the nature of the school environment rather than directly about gender roles. It is not surprising, for example, that girls in a coeducational school should want priority in using the gym but do not indicate such a perception about using computers. The data in Table 4.3 indicate, as mentioned in the literature review, that gender role perceptions are complex and need additional research. Data on the choice of careers for students in the two schools are presented in Table 4.4 and 4.5.

Table 4.4:  
*A comparison of life plan information reported by students in both schools.*

<b>LIFE PLAN</b>	<b>Coeducational School (n=31)</b>	<b>Percentage</b>	<b>All-Girls School (n=94)</b>	<b>Percentage</b>
<b><i>Male Careers</i></b>				
<b>Medicine</b>	0	0%	8	10%
<b>Law</b>	1	3%	0	0%
<b>Engineering</b>	0	0%	1	1%
<b>Finance/Business</b>	3	10%	9	10%
<b>Computers</b>	0	0%	1	1%
<b>Sciences</b>	5	16%	9	10%
<b>Psychology</b>	3	10%	11	12%
<b>Criminal Justice</b>	0	0%	5	5%
<b><i>Female/Gender Neutral Careers</i></b>				
<b>Nursing</b>	6	19%	14	14%
<b>The Arts</b>	4	13%	5	5%
<b>Communication</b>	4	13%	1	1%
<b>Education</b>	2	6%	2	2%
<b>Hospitality/Tourism</b>	0	0%	4	4%
<b>Cosmetology</b>	0	0%	2	2%
<b>Other Medical</b>	0	0%	8	10%
<b>Liberal Arts</b>	0	0%	3	3%
<b>Social Sciences</b>	0	0%	4	4%
<b>Undecided/Other</b>	3	10%	7	7%

Table 4.5:

*Comparison by career type of students from Coeducational and All-Girls schools.*

<b>Traditional Careers</b>	<b>CE SCHOOL (n=31)</b>	<b>Percentage</b>	<b>AG SCHOOL (n=94)</b>	<b>Percentage</b>
<b>Male</b>	12	39%	44	46.8%
<b>Female/Gender</b>	19	61%	50	53.2%
<b>Neutral</b>				

Chi square = 1.213, p = .271 (NS)

As shown in Table 4.3, the chi square computed on the data was not significant. As such, there is no evidence that the career choices of the girls differ as a function of school type. It is important to note that, for the sake of continuity, the categories for career gender are the same as those used by Schmurak (1994) in her analysis of alumnae of girls' high schools.

#### *Interview Data*

The research questions being answered by the interviews are as follows:

3. How do students in the single-sex school perceive their high school experience in terms of being segregated by gender?
4. How do students in the coeducational environment perceive their high school experience in terms of the mixed gender composition of the school?

#### *Interview Subjects*

Five subjects were randomly selected from the original survey group from each research site. Subjects were asked as part of the survey whether or not they would be willing to participate in a follow-up interview. The five for each site were then randomly chosen from the original volunteer group. Students were asked a number of questions and



were invited to elaborate on points that they made during their interview. Overall, the questions served as a guide to the conversation, and students were free to discuss their ideas as they related to their school and schooling environment. The transcripts of the interviews were reviewed, and key concepts, or themes, were identified. Table 4.4 identifies the subjects of the face-to-face interviews. All subjects are 12<sup>th</sup> grade females.

Table 4.6  
*Interview subject names\**

All-Girls School's SUBJECT NAME	Coeducational School's SUBJECT NAME
Patti	Serena
Melanie	Sam
Jennifer	Jackie
Lisa	Cecilia
Rita	Angela

(\*names have been changed to protect privacy of subjects)

### *Parental Influence on School Selection*

Throughout the interviews with the students, it became clear that there was one main difference between the two schools in the reasons one school environment was chosen over another. In the all-girls school, it became clear that the decision to attend an all-girls school was influenced strongly by the desire of the students' parents. The students in the all-girls school were asked if they considered the fact that their school was all-girls when they made the decision to enroll. Their responses were as follows:

*Melanie (AG)*

Melanie: I did take it into large consideration considering that I had come from a co-ed school.

Researcher: So you wanted to be in an all-girls school?

Melanie: Not necessarily...I wasn't opposed to it. My parents were more for it. Since I was coming from far away they thought it would be an easier adjustment in an all-girls than a co-ed school.

Researcher: Why did they think that, you think?

Melanie: Not so much of, like, the pressures of impressing the boys and all the cattiness that goes along with interaction between schoolgirls and boys.

Researcher: So your parents were largely a part of that decision?

Melanie: Yeah. At first I was opposed.

*Patti (AG)*

Researcher: Were you really excited about going to an all-girls school?

Patti: Well, actually I kinda picked it because my brother went to an all-boys school. So my mom was like 'ooh why don't we do something like your brother?' I was like 'OK.'

Researcher: So, did you like the idea or was it your family that liked it more?

Patti: Yeah my family really.

*Jennifer (AG)*

Jennifer: I pretty much decided to go here because my mom and my aunt went here and that's where she wanted me to go. I didn't really think much about it because I didn't have much of a choice.

The responses of the students in the all-girls school indicate that the decision to attend an all-girls school was mostly made by their parents. They did not indicate any inclination toward the school themselves because of the single-sex student makeup. It was their families that pushed for the enrollment. This stands in stark comparison to the students in the coeducational school, who indicate that the decision to enroll in a CE school was mostly theirs.

*Angela (CE)*

Angela: Well, I was, like, looking at an all-girls school, but my sister went here so. And it's right around the corner from my house so it's just kinda like an easy decision...but part of me wanted to go to a boys and girls school. Like, I don't have a reason why, but I feel like I just didn't want to be with all girls.

*Jackie (CE)*

Jackie: I did go to the open houses [at two local all-girls schools] when I was in elementary school. They are both good schools, but I thought it was important to go to a co-ed school.

*Being Yourself*

Both groups of students expressed how the gender composition of their respective schools affected the levels of comfort the girls feel in being themselves in school. The students in the all-girls school expressed that they felt comfortable in presenting themselves in a more relaxed and authentic way than the students in the CE school.

*Melanie (AG)*

Melanie: I've gotten really close with the girls that are here. And there aren't guys. There isn't that divide. I can be myself and there's not, I don't feel like I have to impress anybody. I can just be myself.

Researcher: Did you find that when there were boys around you had to act differently?

Melanie: Not necessarily *had* to but I could see in myself and the people around me that it's just our age. It's something that you do, even if you don't want to.

*Rita (AG)*

Rita: It's cool to be smart here. Because every time boys are in class, like, or around, girls change how they act. That is so annoying. They'll try to act cooler. They really will.

*Lisa (AG)*

Lisa: Here the girls aren't as afraid to ask questions because they don't care what the other girls think. Like, you ask a stupid question and we all just laugh it off. And with guys, they don't want to be embarrassed so, like, some girls I've seen that. Some girls, they don't care. They couldn't care less. Like, I have some of my friends, like, who are very shy around guys, so they don't want to ask a stupid question in front of them so they were more reserved. The girls here are just, you have a question, you just ask it.

*Patti (AG)*

Patti: I don't have to wake up at, like, 6 o'clock and do my hair, even though I probably wouldn't anyway, but still.

Researcher: So you don't have to worry about the way you look?

Patti: Noooo! We all look the same!

*Angela (CE)*

Researcher: Do you find that people act differently when boys are around? Girls act differently around boys?

Angela: Yes...not a lot of girls, but some girls I know. It used to be worse, like, when we were younger, freshmen and stuff. But, they just, like act obnoxious. It's annoying. Like showing off or making a big deal out of everything. It's just not necessary.

*Serena (CE)*

Researcher: How do you think your school would be different if there were no boys in it?

Serena: If there were no boys, I think it would be tremendously different. I believe the overall atmosphere throughout the hallways would be different and honestly I think some of the girls would act completely different since there would be no one to impress. I also think some of the rules wouldn't be so strictly enforced.

### *Summary*

The following is a summary of the findings as they relate to the original research questions.

*Central Question:* What effect, if any, does the schooling environment in terms of gender (SS or CE) have on perceived gender roles and choice of life plan?

- Students in each of the schooling environments have similar attitudes about gender roles, with the exception of the reversal of gender roles. The life plan data reflect similarity between the two populations as well. No significant difference was detected between the populations in terms of life plans.

*Quantitative Questions*

1. Are there significant differences in the gender perceptions of girls who attend a single-sex school as contrasted to girls who attend a coeducational school?
2. Are there significant differences in anticipated life-goals of girls who attend a single-sex school as contrasted to girls who attend a coeducational school?

- The students in the single-sex environment were no more or less traditional in terms of gender perception and anticipated gender roles in life than the students in the coeducational environment overall. Students in the single-sex school, however, were significantly less traditional than students in the coeducational school in terms of their notions about the reversal of gender norms.
- In terms of anticipated gender-roles, the students in the coeducational environment were no more or less traditional in terms of anticipated gender roles in life than the students in the single-sex environment overall.

*Qualitative Questions*

3. How do students in the single-sex school perceive their high school experience in terms of being segregated by gender?

- Students in the SS school expressed that their choice of high school gender composition was most greatly influenced by their parents.
- Students in the SS school expressed that they felt comfortable being themselves in the gender segregated environment, and did not feel compelled to behave in an unnatural way because there were no members of the opposite sex around.

4. How do students in the coeducational environment perceive their high school experience in terms of the mixed gender composition of the school?

- The students in the CE school indicated that the choice of a CE high school was mostly theirs, and was not greatly influenced by their parents' preferences.
- Students in the CE school expressed frustration with the need on the part of some females to act in an unnatural way in the school because of the presence of members of the opposite sex.

## CHAPTER 5

### DISCUSSION

#### Introduction

The topic of single-sex education has been garnering a lot of attention of late, both by lawmakers and in popular media. Recent developments in brain-based research have confirmed the inherent differences in the ways in which boys and girls learn. In addition, legislative changes have made it easier for single-sex opportunities to exist. The timeliness of this study is important, as its intention was to add to the body of literature on single-sex education for young women. This research study sought to ascertain whether or not the single-sex high school environment has a positive effect on young women in terms of encouraging non-traditional gender role perception and life plans. My own personal experience with single-sex education, both for boys and girls, indicates the need for further exploration of this topic.

#### Summary

This research serves to add to the literature on the subject of single-sex education for girls. The debate is current and consistent as to whether or not the single-sex environment is beneficial for both sexes. The study was mixed methods, and I attempted to answer four research questions, two qualitative and two quantitative. The questions are connected under one central question: What effect, if any, does the schooling environment in terms of gender (single-sex or coeducational) have on perceived gender roles and choice of life plan? The quantitative research questions were 1.) Are there significant differences in the gender perceptions of girls who attend a single-sex school as contrasted to girls who attend a coeducational school?, and 2.) Are there significant



differences in anticipated life-goals of girls who attend a single-sex school as contrasted to girls who attend a coeducational school?

The qualitative research questions were 1.) How do students in the single-sex school perceive their high school experience in terms of being segregated by gender? and 2.) How do students in the coeducational environment perceive their high school experience in terms of the mixed gender composition of the school?

The students in both the single-sex school and the coeducational school did not differ, for the most part, in their perceptions about gender roles and life plans. A Gender Role Attitudes survey was administered to students in both environments. There are four categories of question on the survey: *E* (gender equality), *R* (reversal of gender norms), *B* (gender belief), and *M* (moral belief). There was no significant difference between the students except for the reversal (*R*) scale. There are 15 items out of the 106 on the survey that are categorized as Reversal (*R*) items. The reversal items support actively reversing present inequality between the sexes (*see Table 5.1*). So, instead of promoting equality between the sexes, these items indicate a reversal of the norm to favor women rather than men. Interestingly, this was the only category of question that showed a significant difference between the two subject groups. The subjects in the single-sex school were more favorably inclined to support the reversal of gender inequality. This suggests that these students feel that it is not enough to desire equality between the sexes, but they also agree with having a female advantage over males. The subjects in the coeducational school did not show the same tendency toward the reversal of gender norms.

Table 5.1.  
*List of reversal items from gender roles survey.*

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<b>Reversal Survey Items</b>	
1	Boys should be encouraged to do things that girls usually do and girls should be encouraged to do things that boys usually do.
2	There should be special quotas (# of people that have to be hired) for women in government jobs.
3	Schoolteachers should devote more effort to encouraging girls in science and math than they devote to boys.
4	Schoolteachers should devote more effort to encouraging boys in English, social studies, and languages than they do girls.
5	Girls should be given priority in using gyms, and other sports facilities in schools.
6	Girls should be given priority in using computers at school.
7	Families should spend more money on the education of daughters as on the education of sons.
8	Families should provide more medical care to daughters than sons.
9	Governments and hospitals should provide more health care facilities for women than men.
10	Women who stay home and take care of children should be allowed to declare themselves employed for tax purposes.
11	Special fellowships should be available to encourage women to go to graduate school in engineering, mathematics, economics, and other field where women are underrepresented.
12	People in jobs traditionally done by women should be paid more, compared to people in jobs traditionally done by men.
13	More men should go into Nursing and elementary-school teaching.
14	More men should be foreign language teachers.
15	In college classes, professors should call on women more than men when they raise their hands.

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This finding suggests that there may very well be a difference between the attitudes of the two groups, even if in this one way. One possible explanation is that, without the exposure to negative influence of boys on a daily basis, perhaps girls are better able to envision a world in which women are the dominant gender. In classrooms that are laden with the “subtle sexism” that Sadker and Sadker (1994) warn against, it may become easy for young women in coeducational classrooms to become accustomed to the gender norms of society, and even ascribe to them. Lee and Bryk (1986) support these findings as well, for they found in their study that girls were “considerably less likely to evidence stereotyped sex role attitudes than were comparable girls in coeducational schools” (p. 381). In addition, “the stereotyping attitudes of students in girls’ schools showed a statistically significant decline from sophomore to senior years” (p. 389) which would indicate that the longer the exposure to the environment, the greater the effect on gender role perception. In a classroom environment devoid of the opposite sex, it is possible that young women are freer to imagine a society in which the order is inverted. Either way, this area is worthy of further investigation.

The qualitative interviews with the students revealed additional salient information regarding the individual experiences of the students in each environment. It was clear that students in the SS school and students in the CE school originally enrolled because of different reasons. The students in the single-sex school reported that their parents had a great influence on their decision to attend. In contrast, the students in the coeducational school reported making the decision themselves. This would indicate that the parents of students in a single-sex school made the conscious decision to send their daughters there, and the single-sex environment was certainly a factor. It is reasonable to

argue that the parents preferred the environment to the coeducational one because of the gender composition, mainly because the two schools are located in close proximity to each other. There are viable public transportation options to both schools, and they are both in the same district and draw from the same elementary schools for enrollment. Parents saw the value in a single-sex education for their daughters, whether because of empirical evidence or the like, and made the decision to enroll their child. Lee and Bryk (1986) addressed the possibility of selection effects for the positive results they found for all-girls' schools in their analysis of single-sex and coeducational schools and concluded that:

“it is always possible that students and parents choose single-sex schools for other reasons that can also explain the observed results...[but] the preponderance of the evidence that we assembled tends to support a school effect rather than a selection-hypothesis explanation”(p. 392).

Without further exploration of this topic, no definitive conclusions can be made, however.

The second theme that emerged from the interviews with students is the notion that female students behave differently when members of the opposite sex are around. Both groups reported the same ideas about behavior in that sense. The students in the all-girls school, however, expressed that they felt able to behave more like “themselves” because the “pressure” of having males around was not a factor. Likewise, the students in the coeducational school reported that they and their peers are more likely to act in an unnatural way because males are present. Hoffnung (2011) in her comparison of women graduates of all-girls and coeducational colleges found that “single-sex graduates more frequently indicated that their college had provided a supportive environment” (p. 680). This finding speaks to the same notion of single-sex schools for females being

supportive, in this case supportive of the students expressing themselves naturally. So, while the students in the single-sex school in this study were similar to their coeducational counterparts in terms of gender role beliefs, they may be receiving some advantage over their peers in terms of support and encouragement. Riordan (1985) suggests that:

“Single-sex schools...may be particularly advantageous for girls because the top students in all subjects will be females who will serve as role models. The teachers also will be predominantly women, especially in Catholic schools.” (p. 524)

Sadker and Sadker (1994) echo the notion that the single-sex environment is supportive of girls’ development and promotes natural self-expression for young women. Since boys are typically given more attention in classrooms than girls, when there are no boys present, girls are able to take center stage without the competition from the opposite sex. “Boys cast in starring classroom roles are often high achievers...unlike the smart boy who flourishes in the classroom, the smart girls is the student who is least likely to be recognized” (p.48). Boys are not present to dominate classroom activity and be assigned a starring role, so girls are given the opportunity to shine.

Lee and Bryk (1986) argue that:

“what has been considered by some to be an anachronistic organizational feature of schools may actually facilitate adolescent academic development by providing an environment where social and academic concerns are separated.”(p. 381)

Rather than being a “barrier to successful adolescent cross-sex socialization”(p.381) as some critics would suggest, the single-sex environment seems to be successful, by the accounts of students themselves, in breaking down barriers for young women. The reversal section of the survey would suggest this, and it is clearly supported by the

student interviews. As one of the subjects from the coeducational school mentioned, “I believe the overall atmosphere throughout the hallways would be different and honestly I think some of the girls would act completely different since there would be no one to impress.” The boys do not serve as a distraction in the classroom in a single-sex school, and girls can then explore their own self-expression in their absence. The statements of one of the all-girls subjects support this: “It’s cool to be smart here. Because every time boys are in class, like, or around, girls change how they act.” Furthermore, another all-girls student agrees, “I can be myself and there’s not, I don’t feel like I have to impress anybody. I can just be myself.” In addition, the girls in the AG school feel that they are better able to take risks in the classroom. As one student put it “I have some of my friends, like, who are very shy around guys, so they don’t want to ask a stupid question in front of them so they were more reserved. The girls here are just, you have a question, you just ask it.”

### Limitations

This study compared two groups of female students from catholic high schools in a large urban area. As such, there are distinct limitations to the research. For one, the samples are from two schools that are private and Catholic in affiliation. It is reasonable to argue that there may be some confounding factors due to the identities of the school. The Catholic environment, for one, may have an influence on the behavior and perceptions of gender expressed by the students at each site. In addition, the sample size from the coeducational school was smaller than the one obtained from the single-sex school. The subject would benefit from a larger sample, and perhaps even a sample from public schools. Also, the schools are located in a large urban city. The results here might

not be replicated in a suburban environment because of location and/or socioeconomics.

Some of the subjects expressed frustration with the gender roles inventory itself. The inventory is 106 questions long, and it is reasonable to assume that some lost interest and/or became bored before the end of the survey. This could potentially skew the results, especially if the subjects were not carefully considering their answers. The interviews may prove, if the aforementioned is true, to be a better gauge of subject experience. Again, further research is needed to come to a definitive conclusion on the topics presented here.

### Reflection

Overall, this study was unable to determine whether the single-sex environment is advantageous in terms of promoting non-traditional gender role and life plan perceptions for high school females. The significance that was revealed in terms of the reversal of gender roles does indicate, however, that something is occurring for single-sex students, and more research is needed in this area. If the single-sex environment is able to provide young women with an environment that enables them to reimagine the paradigm of gender roles, then there is an advantage there. Rather than promoting the status quo of gender roles and perpetuating sexism, single-sex schools may prove to be the solution to the breakdown of gender norms. They could potentially function to support the promotion of gender equality. In addition, the environment, as expressed by the girls themselves, provides a comfortable environment in which girls feel they can be themselves, there is merit to such an environment.

Based on existing research and the findings of this study, single-sex schooling for

girls may be essential for our society “for what happens to girls in school is cause for grave concern. Girls begin first grade with comparable skills and ambition to boys, but by the time girls finish high school, most have suffered a disproportionate loss of confidence in their academic abilities.”(AAUW Survey, p. 4) Is all-girls education the answer? Maybe. Maybe not. Either way, more research is certainly needed to determine how to better serve our nation’s girls.



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APPENDIX A  
GENDER ROLE ATTITUDES SURVEY

**1=strongly agree 2=agree 3=neutral 4=disagree 5=strongly disagree**

1. The responsibility of taking care of infants should be equally divided between parents, irrespective of their gender.	<b>1 2 3 4 5</b>
2. The wife should have primary responsibility for child care.	<b>1 2 3 4 5</b>
3. Boys should be encouraged to do things that boys usually do and girls should be encouraged to do things that girls usually do.	<b>1 2 3 4 5</b>
4. Boys and girls should be encouraged to do the same things.	<b>1 2 3 4 5</b>
5. Boys should be encouraged to do things that girls usually do and girls should be encouraged to do things that boys usually do.	<b>1 2 3 4 5</b>
6. There should be special quotas (# of people that have to be hired) for women in government jobs.	<b>1 2 3 4 5</b>
7. Schoolteachers should devote more effort to encouraging girls in science and math than they devote to boys.	<b>1 2 3 4 5</b>
8. Schoolteachers should encourage girls and boys equally in science and math.	<b>1 2 3 4 5</b>
9. Schoolteachers should devote more effort to encouraging boys in science and math than they devote to girls.	<b>1 2 3 4 5</b>
10. Schoolteachers should devote more effort to encouraging girls in English, social studies, and languages than they devote to boys.	<b>1 2 3 4 5</b>
11. Schoolteachers should encourage girls and boys equally in English, social studies, and languages.	<b>1 2 3 4 5</b>
12. Schoolteachers should devote more effort to encouraging boys in English, social studies, and languages than they devote to girls.	<b>1 2 3 4 5</b>
13. Laws regarding sexual harassment and rape should be made much more favorable to women.	<b>1 2 3 4 5</b>
14. Because most pornography is particularly demeaning to women, films and magazines depicting women as sex objects should be regulated by law.	<b>1 2 3 4 5</b>
15. There should be no differential dress codes for men and women at workplaces, for example, codes saying that women must wear skirts.	<b>1 2 3 4 5</b>
16. Girls should be given priority in using gyms, and other sports facilities in schools.	<b>1 2 3 4 5</b>
17. Girls and boys should be given equal access to gyms and other sports facilities in schools.	<b>1 2 3 4 5</b>
18. Boys should be given priority in using gyms, and other sports facilities in schools.	<b>1 2 3 4 5</b>
19. Girls should be given priority in using computers in schools.	<b>1 2 3 4 5</b>
20. Husbands and wives should share equally in housework such as cooking, washing dishes, and housecleaning.	<b>1 2 3 4 5</b>
21. The husband and wife should have equal responsibility to contribute to the family income by working.	<b>1 2 3 4 5</b>
22. The husband should have primary responsibility for contributing to the family income by working.	<b>1 2 3 4 5</b>
23. Women in the military should be kept out of certain combat roles.	<b>1 2 3 4 5</b>
24. The Catholic Church should allow women to be priests.	<b>1 2 3 4 5</b>
25. The Muslim religion should allow women to go to work without their faces covered.	<b>1 2 3 4 5</b>
26. Families should spend just as much money on the education of daughters as on the education of sons.	<b>1 2 3 4 5</b>

27. Families should spend more money on the education of daughters as on the education of sons.	1 2 3 4 5
28. Families should spend less money on the education of daughters as on the education of sons.	1 2 3 4 5
29. Families should provide equal medical care to daughters and sons.	1 2 3 4 5
30. Families should provide more medical care to daughters than to sons.	1 2 3 4 5
31. Families should provide less medical care to daughters than to sons.	1 2 3 4 5
32. Governments and hospitals should provide more health care facilities for men than for women.	1 2 3 4 5
33. Governments and hospitals should provide equal health care facilities for men and women.	1 2 3 4 5
34. Governments and hospitals should provide more health care facilities for women than for men.	1 2 3 4 5
35. Families should provide daughters with as much inheritance as sons, and as much authority over the use of inherited funds.	1 2 3 4 5
36. Women should be allowed to have maternity leave without fear of losing their job while they are away.	1 2 3 4 5
37. Men should be allowed to have paternity leave without fear of losing their job while they are away.	1 2 3 4 5
38. High schools should spend as much money on girls sports as on boys sports.	1 2 3 4 5
39. Women should have equal access to health clubs and recreational facilities in the workplace.	1 2 3 4 5
40. Husbands and wives should have equal roles in decisions about investments.	1 2 3 4 5
41. Husbands and wives should have equal roles in decisions about spending money.	1 2 3 4 5
42. Husbands and wives should have equal roles in decisions about where to live.	1 2 3 4 5
43. Husbands and wives should have equal roles in decisions about the education and care of their children.	1 2 3 4 5
44. Women who stay home and take care of their children should be allowed to declare themselves as employed for tax purposes.	1 2 3 4 5
45. Special fellowships should be available to encourage women to go to graduate school in engineering, mathematics, economics, and other fields where women are underrepresented.	1 2 3 4 5
46. Women's sports at colleges should receive less funding than men's sports.	1 2 3 4 5
47. Fathers and mothers should be treated equally by the law in child custody cases. It should be the parent's circumstances that matter, not the parent's gender.	1 2 3 4 5
48. People in jobs traditionally done by women should be paid more, compared to people in jobs traditionally done by men.	1 2 3 4 5
49. Men should give up their seat to women on the train or bus.	1 2 3 4 5
50. Women and men should not be treated any differently on buses and trains in terms of seating.	1 2 3 4 5
51. Parents should spend more effort teaching girls to take care of their appearance than they spend teaching boys about this.	1 2 3 4 5
52. There are occasions on which women and men should eat separately.	1 2 3 4 5
53. Trains should have separate cars for women.	1 2 3 4 5
54. At a social dinner, men and women should stay together rather than separate.	1 2 3 4 5

55. In religious services, men and women should be together.	1 2 3 4 5
56. In college student residences, men and women should not live together on the same floor.	1 2 3 4 5
57. More men should go into nursing and elementary-school teaching.	1 2 3 4 5
58. Medicine is a more appropriate career for a woman than engineering.	1 2 3 4 5
59. More men should be foreign-language teachers.	1 2 3 4 5
60. In college classes, professors should call on men and women equally when the students raise their hand.	1 2 3 4 5
61. In college classes, professors should call on women more than men when students raise their hands.	1 2 3 4 5
62. Men should not think badly of women who ask them for a date.	1 2 3 4 5
63. Virginity is more desirable in a woman than in a man.	1 2 3 4 5
64. In relationships between men and women, disloyalty should be equally censured for women and men.	1 2 3 4 5
65. In relationships between men and women, disloyalty should be censured more for women than for men.	1 2 3 4 5
66. The most important criterion in the choice of marriage partners should be the need for love and companionship.	1 2 3 4 5
67. Individuals should choose their own marriage partners rather than letting their parents decide.	1 2 3 4 5
68. Marriage partners should be about equally well educated.	1 2 3 4 5
69. Husbands should be better educated than their wives.	1 2 3 4 5
70. Marriage partners should socialize with other people as a couple.	1 2 3 4 5
71. The husband and wife should have equal responsibility for household work other than child care.	1 2 3 4 5
72. The wife should have primary responsibility for house work other than child care.	1 2 3 4 5
73. Both parents should have equal say in the decision to have a child.	1 2 3 4 5
74. Men should have more say in the decision about whether to have a child.	1 2 3 4 5
75. Women should have more say in the decision about whether to have a child.	1 2 3 4 5
76. If one parent is to care for a child, the child develops better if it is the mother rather than the father.	1 2 3 4 5
77. Boys are naturally better at math and science than girls.	1 2 3 4 5
77. Girls are naturally better at English, social studies, and languages than boys.	1 2 3 4 5
78. Boys are naturally better at most sports.	1 2 3 4 5
80. Boys need sports activities for their psychological development more than girls do.	1 2 3 4 5
81. Boys are naturally better at learning to use computers.	1 2 3 4 5
82. Human beings evolved for women to do the work at home and men to do the work outside of the home.	1 2 3 4 5
83. Men are more capable than women of killing the enemy in war.	1 2 3 4 5
84. Women have more medical problems than men.	1 2 3 4 5
85. Men are better at making decisions about money.	1 2 3 4 5
86. Women are better at making decisions about child care.	1 2 3 4 5
87. Human beings evolved so that men have authority in the family.	1 2 3 4 5



88. It is more difficult for a woman than for a man to stand up on a train or bus.	1 2 3 4 5
89. Men and women are naturally interested in different topics for conversation.	1 2 3 4 5
90. Men are naturally more concerned than women with matters of the spirit.	1 2 3 4 5
91. Men are naturally better religious leaders than women.	1 2 3 4 5
92. Men are more rational than women.	1 2 3 4 5
93. Human beings evolved so that the man pursues the woman in courtship, not the other way around.	1 2 3 4 5
94. Human beings evolved so that men need more sex partners than women.	1 2 3 4 5
95. Women are better suited than men to child care.	1 2 3 4 5
96. Men are better suited than women to work outside of the house.	1 2 3 4 5
97. Men are better suited for higher education than women.	1 2 3 4 5
98. If men are naturally better at a particular task than women, we should leave things as they are if more men than women wind up doing that task.	1 2 3 4 5
99. If women are naturally better at a particular task than men, we should leave things as they are if more women than men wind up doing that task.	1 2 3 4 5
100. Even if men are naturally better than women at something, we should try to make sure that equal numbers of men and women do that thing.	1 2 3 4 5
101. Boys and girls should have equal opportunity and should not be treated differently.	1 2 3 4 5
102. Boys should be encouraged to do what boys are naturally good at, and girls should be encouraged to do what they are naturally good at.	1 2 3 4 5
103. There should be concerted efforts to raise children with a non-sexist orientation, at home and in schools.	1 2 3 4 5
104. Child rearing should try to compensate for natural differences between the sexes, even if that requires encouraging boys to do "girlish" things and encouraging girls to do "boyish" things.	1 2 3 4 5
105. It is not the business of government to worry about the different roles played by men and women.	1 2 3 4 5
106. Women and men should be respected in different ways.	1 2 3 4 5

1. What are your plans after graduation?
  - a. College  
If so, what do you plan on studying?
  - b. Work  
If so, what type of work?
  - c. Other  
Please explain.

2. Would you be willing to be interviewed about some of the questions you answered here?

\_\_\_\_ YES (Please provide your name and email address below.)      \_\_\_\_ NO

APPENDIX B  
INTERVIEW PROTOCOL

## Follow-up Interview Guide

Students who opted during the initial survey to participate in a follow-up interview will be chosen at random. They will be contacted through an email address supplied to the researcher on the initial form. The interview time/date will be set up through the building principal or their designee.

### Script for email

Hello. My name is Rose Scioli. I was the researcher who administered the survey to you in homeroom regarding your opinions on gender roles. You indicated your willingness to participate in a follow-up interview. The interview should not take more than 20-30 minutes to complete, and you will be asked a series of questions to clarify your opinions about women, men, and their respective roles in society. If you are still willing to participate, please respond to this email. Also, if you have any questions or concerns, I would be more than happy to answer them at this time.

Thank you in advance for your help.

### Protocol for Interview

#### 1. Script for opening the interview

Hello. My name is Rose Scioli. I would like to thank you for taking the time to meet with me today. I would like to talk to you about your opinions regarding gender role – specifically how you feel about the roles that men and women should have in society. I would also like to learn about what your plans are for yourself after graduation from high school.

The interview should not take more than 30-40 minutes. I will be taking notes during that time so that I can accurately recall our conversation at a later time.

All of your responses to my questions are kept confidential, and I am the only person who will have access to any information that would identify you. Your responses will be used in the completion of my doctoral dissertation at Temple University.

We do not have to talk about anything that you do not want to, nor with which you are uncomfortable. You are free to withdraw participation in this interview at any time.

Do you have any questions about anything that I have just said?

Are you willing to participate in this interview?

## Questions for Interview

The actual questions for the interview will be open-ended questions that reference some of the items on the students' initial survey. As the intention is to develop a rapport and encourage a conversational exchange, the questions listed below will be used as a guide. The interview questions will be dependent largely on student responses to the structured survey, which has not been conducted yet. The students will be asked to explain further their opinions on male/female societal roles and their own plans for the future regarding career choice.

### Open-Ended Interview Questions

For SS students:

1. Did you consider the fact that your school is all-girls when you made the decision to enroll?
2. Did that have a big impact on your choice of school?
3. How do you feel about being in a school that does not have boys in it?
4. How do you think your school would be different if there were boys in it?
5. What do you plan on doing after graduation? Why?

For CE students:

1. Did you consider the fact that your school is co-ed when you made the decision to enroll?
2. Did that have a big impact on your choice of school?
3. How do you feel about being in school together with boys?
4. How do you think your school would be different if there were no boys in it?
5. What do you plan on doing after graduation? Why?